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Futuristic Smart Solutions for People of Determination in Schools and Universities

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Futuristic Smart Solutions for People of Determination in Schools and Universities

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Abstract

In this project, future smart solutions for people of determination in schools and universities were discussed. The background was presented on the topic, as the issue of integrating people of determination in schools and then integrating them into society still takes a wide range of societal, family, and institutional attention, and it undoubtedly deserves much attention that befits this dear group in our society. The literature has shown the existence of previous studies and applications similar to those proposed in the project, which sought within the framework of this advanced vision to enable "people of determination" to provide quality services that meet their healthcare and rehabilitation requirements, and to provide an educational and educational system that ensures their full integration into society, and ensures their access to the same opportunities of education as their peers in various educational institutions, qualifying them to obtain employment opportunities appropriate to their potential (Augusto, Kramer, Alegre, Covaci, & Santokhee, 2018). The methods related for gathering information and data collection for this study will include a three-step approach wherein the first step is to design a set of structured open-ended questions that are answered from previous experience, knowledge gathered during field visits to schools and universities that the researchers (we) undertook of during the graduation years. The second step involves situation analyses of the general map of a public school in UAE followed by a design of a new map that contains the layout of a smart center for people of determination and is to be placed within the school premises along with a budget plan for the new ICT lab specifically for the people of determination. Then the third step is the analysis of data using SPSS. The result of this project will show the level of awareness of the UAE educational institutions and its staff in using Information and Communications Technology (ICT) and the gap that exists in the UAE education process in the information technology context. It will represent the real situation that the people of determination live in their academic life, this attempt to enhance it. The importance of ICT lies in its ability to open a wide range of services, transform existing services, and create greater demand for access to information and knowledge, particularly in underserved and excluded populations, such as persons with disabilities. The ICT opportunity for persons with disabilities can be better assessed by analyzing how each type of access technology contributes to the different dimensions involved in the social and economic inclusion of persons with disabilities (Lawrence,2004). The main benefit that this project

would generate is to increase the teachers' and principals' awareness of the new technologies, devices. Such as e-Braille, smart elevators programmed with face ID, and virtual assistants (Blindness students). Robots to enhance communication for people with autism. The application between the guardian of the people of determination and the teacher to follow up everything related to behavior, degree, and development. A smart wheelchair that contains emergency buttons connected to the nurse and administration. Methods that can be used in the educational process will direct the people of determination and the normal students as well. These questions provide several suggestions to be used in the educational institution. Without conducting this project, the educational institutions, principals, and teachers will not know the state of the art in modern methods and tools that can be indulged in used to enhance its education system remains lagging behind the other countries if they don't think of improving their systems using these suggestions and ideas that we generated from our literature review.

Keywords:

People of determination, Special needs students, Futuristic tools for education, education, and learning

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Chapter 1

The first chapter introduces the topic and research idea and consists of sections that build a strong foundation for the current research or capstone project. The report of which is being drafted hereby. The overall agenda of the report is to investigate the current operations of schools regarding their approaches to help the people of determination and find ways in which students can further be helped. The idea is to suggest upgrades of school infrastructure to increase the use of futuristic technologies after proper study of ways, they can offer assistance to the people of determination.

1.1. Background

People of determination are members of society who are deprived of the capabilities that a natural person possesses, and this causes their special problems in the field of education. People of determination face challenges in receiving an appropriate education, as their disability prevents them from reaching their full potential in the field of education. Each disability has different emotional and physical characteristics, so everyone suffers in their way. The issue of integrating people of determination in schools and universities still takes a wide range of societal, family, and institutional attention, and it undoubtedly deserves much attention that befits this dear group in our society. The problem is facing challenges facing the integration of people of determination in schools and universities. Whereas, given the studies presented in this matter, it becomes clear as a background to the problem of high school costs, lack of readiness of curricula, lack of infrastructure, scarcity of teaching staff, lack of methods used by schools to detect and support students, and the need to meet the needs of students of determination in regular classes (Starcic & Bagon, 2014), And the need to develop individual educational plans and methods, and the importance of meeting students' social, emotional and cognitive development needs compared to international standards, and following up on their academic progress by providing specialized intervention and professional development. Finally, schools need more resources to help with interventions to consider individual differences among students.

It has been observed that the utilization of ICT technologies can be assisting in promoting learning and achievement for students with determination. It is believed that effective forms

of information communication technology can be properly applied to solve the learning gaps for students who are facing problems due to their learning needs and disabilities. The application of different curated technologies based on ICT solutions can be beneficial for students with disabilities. The difficulties in learning can be tactfully eliminated by providing digital and curated solutions for their learning challenges. Problems faced due to hearing difficulties or vision imparity can be properly tackled by including ICT technologies and smart solutions which will be inclusive of digitization (Cagiltay, Cakir, & Cicek, 2019). Empowerment on literacy movement and effectiveness of the concept learning will be provided with the application of the most appropriate tool.

Furthermore, the adoption of smart technology solutions can empower students to be highly independent and promote them in self-regulating their learning processes. As the student with special needs or determination has a deficit towards learning competency, the inclusion of innovative smart gadgets and technological solutions can be highly beneficial in supplementing them with an effective classroom experience within schools and universities. Smart learning technologies will be transforming their teaching process. The inclusion of smart technological solutions can enhance communication skills, thinking ability. A new digital solution can be effective and significantly will provide the student with determination with opportunity in virtual learning (Horbova, Andrunyk, & Chyrun, 2019). Different types of smart technologies will aid in the minimization of learning barriers for the students with disabilities in the learning environment.

This is what prompts us in this study to highlight the reasonable solutions that enable the state to provide people of determination with an educational future similar to all individuals in the Emirati society. To provide them with equal opportunities in the future job market in various sectors and not deprive them of it.

1.2. Statement of the Problem

Including persons with disabilities in all aspects of society is one of the remaining challenges of the global development agenda. In this context, the use of Information and Communication Technologies (ICT) allows the removal of many of the remaining barriers faced by persons with disabilities. With ICT increasingly integrated into every aspect of the modern world, these ubiquitous technologies have become a positive force of transformation and a crucial

element of any personal development/empowerment and institutional framework for inclusive development. ICT is already providing access to key public services, with widespread implications for social progress and economic growth aimed at eradicating poverty and promoting inclusive societies and sustainable development. Accessible ICT has the potential to provide persons with disabilities unprecedented levels of access to education, skills training, and employment, as well as the opportunity to participate in the economic, cultural, and social life of their communities. They feel hesitation to use smart technologies in their studies due to awareness of modern technologies assistance for students of people of determination. Inspecting in this study will be that of the issues that people of determination go through for their learning and find the ways futuristic technologies are there to aid their learning process. The practical elements of the futuristic education support system through our experience in the field of education, it has been observed that there is no interest or development in using technology as well as smart learning in the UAE society especially people of determination.

Through this project, we will support students of determination in the UAE society by providing smart solutions and providing technical resources to enhance unsupported skills. In addition to achieving justice and trust between them and the rest of the students, feeling equality and providing them with the necessary needs to feel comfortable and be within the one Emirati society.

1.3. Project Goals

Project definition: it is a set of smart solutions that help people of determination to receive education in a fair manner similar to normal people and facilitate their practice of daily activities in and outside educational institutions.

Project Goals:

- Providing smart elevators programmed with face ID and virtual assistant (Blind students).
- Providing robots to enhance communication for people with autism.
- Preparing and controlling a related application (Smartylife) between the guardian of the people of determination and the teacher to follow up everything related to behavior, degree, and development.

- Creating a smart wheelchair that contains emergency buttons connected to the nurse and administration. **(See Appendix A: Smart Technologies)**

1.4. Research Questions

RQ-1: What factors are behind the lack of awareness of UAE students (people of determination) concerning smart technologies?

RQ-2: How can futuristic technology be useful for learning of people of determination in UAE?

RQ-3: How smart technology will change the way of learning amongst UAE students (people of determination)?

We assume the following assumption results of the project:

- The proposed solution impacts the positive effect of using smart elevators that work to recognize the face ID in the education process for people of determination who suffer from blindness.
- The proposed project impacts the positive effect that the use of a robot can have in the education process for children with autism in their communication with the teacher and their participation in the educational process.
- The proposed project impacts a positive impact that the existence of a smart application can leave to guard people of determination and its containment of an interaction platform between parents and teachers that helps them easily track the student.

Based on the aforementioned assumptions the main hypotheses for the research can be formed in form of the null and alternative hypotheses can be framed for this research. The hypotheses are given one after the other.

Null Hypothesis (H0): Futuristic and smart technology has no positive impact in aiding the people of determination in matters of better learning.

Alternative Hypothesis (H1): Futuristic and smart technology has a positive impact in aiding the people of determination in matters of better learning.

Now, from these hypotheses, there will be one selected and one rejected based on the tests that will be performed on the primary data that is to be collected and analyzed in chapter four of the ongoing research.

1.5. Research Methodology

The research methodology that will be followed in this study includes a three-step methodology (questionnaire and research, designing and budgeting, analysis). The first step will involve answering open-ended questions with aid of prior knowledge through field visits and literature review findings, the second step will be to design a smart center plan for schools with proper technologies to aid the people of determination and budgetary analysis of the new smart center. The third step will involve analysis of the topic will include quantitative analysis using SPSS software.

The research method is probably the most important part of any study that focuses on the development of the research design. The topic here resonates with learning, development, and the use of technologies in those fields. The actual idea is that the people of determination will have futuristic technologies helping them to learn and complete the school curriculum. Accumulation of secondary information as additional evidence for the execution of the project will also be looked upon. This will include proactive searching and reviewing of articles that are of relevance to the topic. There will also be the use of theories for learning to depict the situation better. The conceptual framework will be designed using the ideas from such secondary data.

The response to the questions that we will provide will have acute information about feasible technologies and approaches that schools can undertake to use the same in aiding the learning process for the people of determination. This means the data collected is in accord with this research only. The studies can be used from secondary information to consolidate and design a primary data collection instrument. The data collection instrument will be that of a structured questionnaire categorically designed to retrieve primary information. Throughout our previous field trips and curriculum, we have attained knowledge to become subject matter experts and we have designed 9 questions derived from primary research questions that will cover essential discussion points. The second step includes finding a plan for a smart center that can be placed inside schools as a special wing for helping the students who have special needs along with a map layout and budget plan for the new center. The

third step is to analyze the data in SPSS to conduct a regression analysis, frequency, and demographics analysis.

1.6. Limitations of the Study

The first limitation is that the study is based on people of determination, there is a lesser chance of gathering primary data through survey or interactions with the students directly, then there is the factor of interviewing school administration but the information that will be retrieved has the risk of getting biased ideas since administration will not say much regarding the establishment's lack of facilities. Secondly, the limitation is that due to the COVID-19 protocols which restricted primary interactions further it can be stated that there can be issues related to. The data collected from the field would have added some major benefits to the findings.

Chapter 2- Literature Review

Types of Smart technology projects for people of determination in schools and universities

In a study conducted by (Kurg, 2019) at Tallinn University of Technology, a plan was proposed in which an automated face management system would be developed to form a smart elevator project, which was developed by KONE Incorporate that is considered one of the most important elevators building factories in Europe. Through these smart elevators, convolutional neural networks, clustering, and classification techniques can be used integrated into a pipeline to identify the face ID and know its data when visiting the elevators. This automated system of the face ID learns with time and distinguishes people and identifies them through cameras installed inside the elevator that depicts the user interface. The elevator becomes able to distinguish on which floor this person is going frequently and operating in real-time. This enables asynchronous communication by default; it creates an online user interface on the internet, creates a database through face ID, displays activity events throughout the elevator's user history, and provides means for direct system monitoring. By using complex methodologies and processing recorded video clips, the system was able to collect data for 133 people with a success rate of 99.2%, which is what makes this project successful and viable (Kurg, 2019).

A study was conducted by Arshad et al. (2020). They investigated the effectiveness of robots as educational technology tools that help children with Autism and enhance their ability to communicate in educational settings. Individual case studies were conducted for eight children with autism, four males and four females. A dedicated and programmed robot "PvBOT" was built to teach basic concepts of spatial values in mathematics to autistic children. The results of using this robot were effective; the robot worked to enhance students' interest in education and increased their participation, as it was able to remove barriers that prevent children from communicating and acting freely (Arshad, et al, 2020). Because children are not afraid of the teacher's anger, they act more freely. Also, the robot stimulated children with autism to pay attention and focus for longer periods when they participated in-class activities. Without the robot, the children were not focused on the teacher’s speech for more than five

minutes. Finally, the robot enhanced interaction and communication among the students, as they communicated and interacted with the robot and with another child. Before the robot, a child with autism was averse to communicating with any child. But with the use of the robot, enhanced his communication with other children, the researcher, and the teacher, as they were giving opportunities to each other to get help in dealing with the robot (Arshad, et al, 2020). Using robots caused factors of relaxation and calm in the classroom environment, and this helped them to communicate better.

From the evaluation of studies conducted by Iyo & Caraig, (2020). It has been observed that the application of mobile-based applications like care zone improves better detection of issues and their symptoms within the body of an individual and by improves the functionality. Carzone application is characterized by providing a space of high concern for people of determination, comprehensively analyzing their health status, and highlighting all the issues that they suffer from, the level of development of comprehension and perception, recommendations, help, and support for parents to deal with the child's condition and direct them to the sources with appropriate support services for their children. Whereas, this application, provides a space for attention for people of determination, from parents and teachers to them (Iyo & Caraig, 2020).

Application and usage of smart technologies for people of determination in schools and universities

Debnath et al. (2018) talk about designing smart flexible wheelchairs that contain a technological infrastructure through which a monitoring system for critical patients of the People of Determination is set up. These smart wheelchairs can be controlled by a mobile phone and control buttons. If the patient goes through a hostile condition, he will issue alerts by raising the alarm by measuring the heartbeat and sending notifications to the competent nursing authorities and health care centers (Debnath, Abadin, Hossain, 2018).

The young people have unprecedented access to and unforeseen use of new technology. Teens around the world are growing up in a world that is dominating contact with the Internet, mobile phones, text messages, television, and video games, and another technology and is an important part of daily life. Children are plunged into a world full of knowledge (Talib, Einea, Einea, & Mowakeh, 2019).

Technological developments have changed society significantly. There are many people worldwide who use advanced technology. The broad proliferation of information and communication technology has been one of the most dramatic developments in the past decade (Horbova, Andrunyk, & Chyrun, 2019). Technological growth has changed the world, changing the everyday lives of teenagers.

The advent of PCs and the scale of Internet access create an atmosphere in which global training programmers are compelled to significantly alter their training structure. The obligation of education systems to cope with the changes is obvious. Its primary aim should be to enhance human power against change, i.e, someone can respond rapidly to ongoing change and economic observation. The quicker the transition, the greater the focus should be on understanding the patterns of future events (Izani, Alkhalidi, & AishahRaza, 2019). We should develop a meta-industrial education framework to help people eliminate future shocks (Fichten, Olenik-Shemesh, & Asuncion, 2020). We should seek our purposes and strategies in the future, rather than looking in the past. It's evident that the world in the 21st century will be governed by advanced technologies and that the education system will not be able to evaluate itself as islands isolated from the other national and social organizations of the global village due to rapid technological, financial, cultural, and political changes.

Alfred Bork is a leader in education technology and has for some time led, among other awards, the Alliance of Education Data Systems, the Special Interest Group for Computer Machinery for Education, and consulted for the National Education Institute on this subject and been called Exceptional Computer Educator. Education is becoming highly interactive, involving the student every twenty seconds or so, contrary to today's passive lecture methods. Education will be individualized to enable computer visualization of the education adapted to the previous learning opportunities and styles of each student with world-class records of learning attempts (Cagiltay, Cakir, & Cicek, 2019).

Compulsory expectations and empowerment are at risk. Australia is a country whose government policy has set the basic organizational concept of educational self-management. The deception of school performance under this program led to the current 'Third Millennium Schools' plan, which will also be focused on the creative use of technology in education but driven by core State criteria for all students. Furthermore, since the program was included in

a strategy to reduce funding, many observer organizations worried that the "Third Millennium" would replace wealthy, conventional inferior online education (Kollath, 2020).

Role of assistive technologies in promoting education facilities for the people with determination

From the studies conducted by Almekhalfi & Tibi, (2012). It has been understood that with the rapid rise of innovation utilization of smart technologies in education has been prioritized. The technological intervention has been regarded to be highly essential in educational settings and classroom programs to provide an optimal learning experience. The utilization of smart gadgets and modern tools is facilitating communication among students having disabilities or without disabilities. The role of assistive technology has been highly effective as they are transforming the mode of education in schools and universities. Students with learning difficulties are empowered with better understanding by the incorporation of different modules of assistive technology (Clouder, et al., 2019). Based upon modern forms of innovative technology many new devices have been integrated within schools and colleges of UAE. This has been done with the to better delivery of education facilities to the people with determination and eliminates their learning difficulties. The government of UAE has developed a firm belief that assistive technology will promote better functioning of people with determination as they will be encouraged in becoming more independent in seeking that desired education facilities. The inclusion of different smart solutions that are driven by modern innovation like that of electric power wheelchairs, assistive crutches, walkers will be beneficial for people with determination in schools and universities to move around from one place to another. Improved mobility is one of the most beneficial aspects of futuristic innovation which empowers students in becoming self-dependent.

Detailed understanding from the studies carried out by Mikhaylov and others, (2018). It has been understood that artificial intelligence has also been prioritized to support people with a determination within the education setting. Integration of futuristic learning programs based on adaptive technologies and artificial intelligence are enabling teachers within the school to deliver personalized learning to people with determination. The approach has been considered to be effective as better engagement with the students with learning issues can be minimized (Xanthidis, Manolos, & Paul, 2020). The inclusion of AI-driven educational software is currently being deployed by proper assessment of the skill set and learning

difficulties of students with disabilities. For any student having hearing difficulty or speech, issues think, these modern forms of adaptive technology are streamlining their learning processes and assisting them to understand their courses in a better manner (AlHamad, 2020). Learning challenges that have been faced by individual students appropriately analyzed and lesson plans are developed with the incorporation of adaptive learning technologies based on observations from the study are highly assistive for this research project as the application of different technological smart solutions based on AI will be done to empower student learning process (Mikhaylov, Esteve, & Esteve, 2018). The role of different types of technology in empowering people with determination in school and colleges will be properly evaluated. How smart technology will change the method of learning approach for people with disabilities in the UAE will also be understood.

Use of assistive technologies in the schools and universities in UAE and government role

Proff & Mazrouei, (2021) think that a greater amount of encouragement has also been provided by the local government of UAE amongst technological students for the rapid scale of innovation in adaptive technologies based on artificial intelligence to support people of determination within schools and colleges. As a part of the program related to the month of innovation in 2020, the introduction of innovations and solutions-driven on artificial intelligence have been showcased (tellerreport.com, 2020). Students have highlighted their current skill sets that are associated with inventions to support people with determination. To actively eliminate the learning difficulties these initiatives have been designed by the government of UAE (Proff & Mazrouei, 2021). Students belonging to the Institute of Applied Technology have been proactive in inventing a smart glass based on artificial intelligence architecture for supporting students having vision imparity. The smart glasses are deemed to be highly beneficial and empowering as students will be assisted in mobility and overcoming obstacles on their path. This will be beneficial to avoid obstacles that can impede them. The smart glasses will be comprised of a vibrating sensor and having camera lens that will provide them with signals to avoid accidents. From the studies, it has been believed that integration of assistive technology in the modern education system can compensate for an area in which the student is facing a significant amount of skill deficit due to disability (Proff & Mazrouei, 2021). Issues in learning within people with disabilities can be caused due to multiple issues like physical disability, mental disability visual disability, and learning disabilities. By

identification of the specific barrier in learning for the people with determination inclusion of assistive technology-based gadgets can boost in meeting their learning goals.

Theoretical Framework

Technology acceptance model (TAM)

Consideration of the theoretical framework has been done in proper alignment with the design questions of this research project. To meet the goals of this research and understand the role of smart technology in the transformation of learning within people of determination students in UAE the most relevant theoretical model has been demonstrated. As the research project is carried out in the investigation of futuristic smart solutions selection of the Technology acceptance model (TAM) has been deemed to be appropriate. In course of selection of the most appropriate theoretical framework, different existing theories have been analyzed to understand its relevance to the current context of the study. The technology acceptance model (TAM) is considered to be of greater relevance to this research project as it will outline how innovation is practiced within the modern education system that empowers students with disabilities and outlines the challenges which lower their education processing capability.

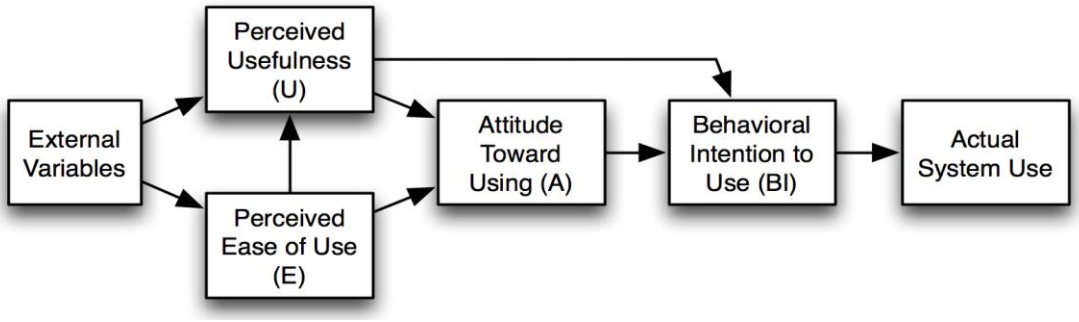


Figure 1: Technology acceptance model framework

By evaluation of the Technology Acceptance Model (TAM), the method by which modern forms of innovation are accepted by the community is understood (Kamal, Shafiq, & Kakria, 2020). The factors behind accepting a modern form of technological innovation have been properly observed by interpreting the theory demonstrated through the Technology Acceptance Model (TAM). The framework outlines the role of information systems and their influence on the behavioral intention of an individual. The two primary variables that are reflected in this Technology Acceptance Model (TAM) are perceived usefulness and perceived

ease of accessibility amongst users. Both the variables are influenced by different independent factors or variables such as job position, function, culture, common knowledge, and data quality. It is believed that by understanding the usefulness of modern innovative technology, the behavioral intention within an individual is promoted. Behavioral intention is the most contributing element of the technology acceptance model that maneuvers the attitude of an individual while accepting the latest innovation (Scherer, Siddiq, & Tondeur, 2019). The ease of use is another contributing element outlined in the Technology Acceptance Model (TAM) that signifies the impact of the technology on the community shortly. Utilizing an in-depth evaluation of the Technology Acceptance Model (TAM) framework, it is thoroughly understood that innovations that are easy to handle can have a positive impact on the community. With understanding the usefulness of new innovative technology, faster adoption of its characteristics can be done, and it can be properly applied for achieving the desired outcomes.

Detailed understanding generated from evaluating the characteristics of the Technology Acceptance Model (TAM), showcases that the framework can be useful for the modern education system as the perceived utilization of futuristic technology and smart innovative solutions can be understood (Kamal, Shafiq, & Kakria, 2020). Moreover, with the assistive of this theoretical perspective, smart learning technologies can be properly applied for the betterment of students with disabilities.

Chapter 3: Project Description

The chapter here covers the details about the methods used along with the mention of tools and instruments that will be used for the entire data analysis and results section of the research. There had been upgrades made to the approach of the research despite the methods that were proposed during the proposal of this project due to unavoidable circumstances and to meet the accuracy of the entire research.

3.1. Research Design and Methods

The purpose of any capstone project or research is to investigate a specific problem and find ways in which the problem can be solved or issues that are of concern to the community or any type of sector can be addressed. As mentioned in earlier sections so far, the problem at hand is that of the fact that to what extent futuristic technologies are used in schools for aiding the learning process of students who fall under the category of people of determination. The research design overall has a quantitative approach. The data analysis will be done in three steps, first is the study of the research questionnaire and the hen analysis of a school map followed by the design of a new ICT lab map that can be implemented in schools. The quantitative analyses will be done using SPSS for a selected number of schools in UAE, with a hypotheses test to check whether schools have existing facilities using advanced technology to help people of determination. In addition, this approach will aid in finalizing the appropriate numbers for a budget plan of the infrastructure. This perfectly aligns with the goal of the research that is to look into ways in which futuristic technologies and help people of determination by making their lives easier at a school level. The design that will comprehend the overall approach undertaken for the research will be given as per the following image.

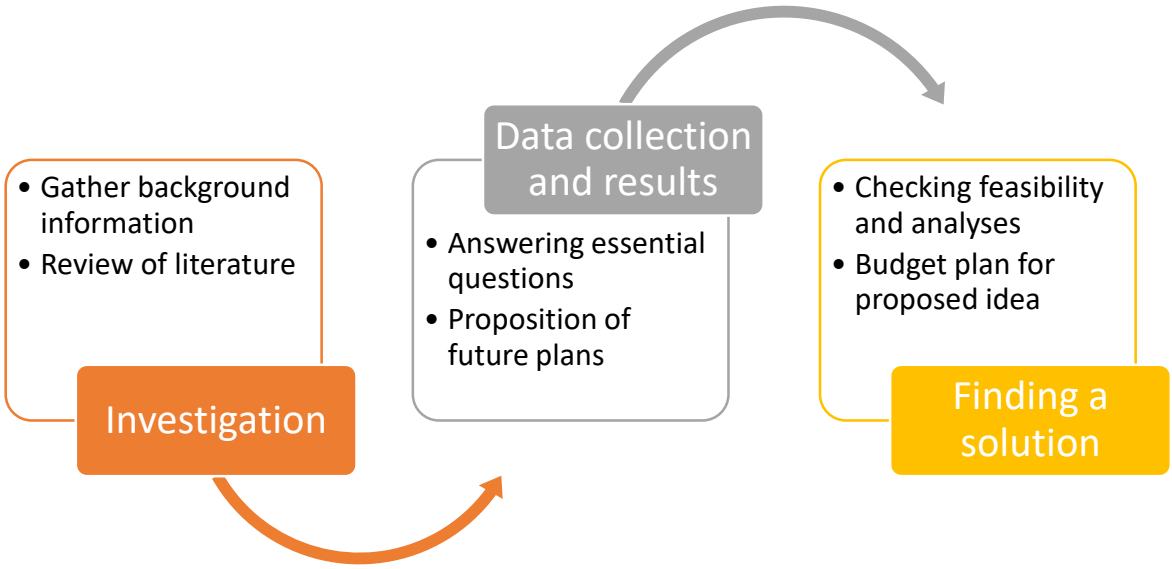


Figure 2: Research design

The figure gives an overall presentation of the research design that will be done using a mixed approach. Now to shed light on the quantitative methods that will be used in the present study we need to explain the overall design for each specific method.

The three steps are a set of questions that will be designed in the upcoming section to build the essential areas information for which can be gathered from different sources of knowledge that we gathered as researchers in our previous academic session where we had to visit a series of schools in UAE. This will be the first step of the analysis or results. The second step is to build a study on a generalized map of a public school in UAE, where the essential area and the facilities of the establishments are to be analyzed and found. Then there should be an upgrade incorporated in the map for developing and designing a smart center that will be specifically dedicated to aiding the learning process for the people of determination and is set to have all essential technical facilities and futuristic technologies that will be of significant help to the people of determination.

The quantitative approach or methods will be used for analyzing data with Hypotheses, Demographics, and Regression. The quantitative analysis helps in understanding whether the schools are equipped with essential features to assist the learning experience for the people of determination.

Thus overall, the research method can be classified as a three-step approach for analyses of ideas in line with the current project.

The below diagram can be given as follows that will help in understanding the process better:

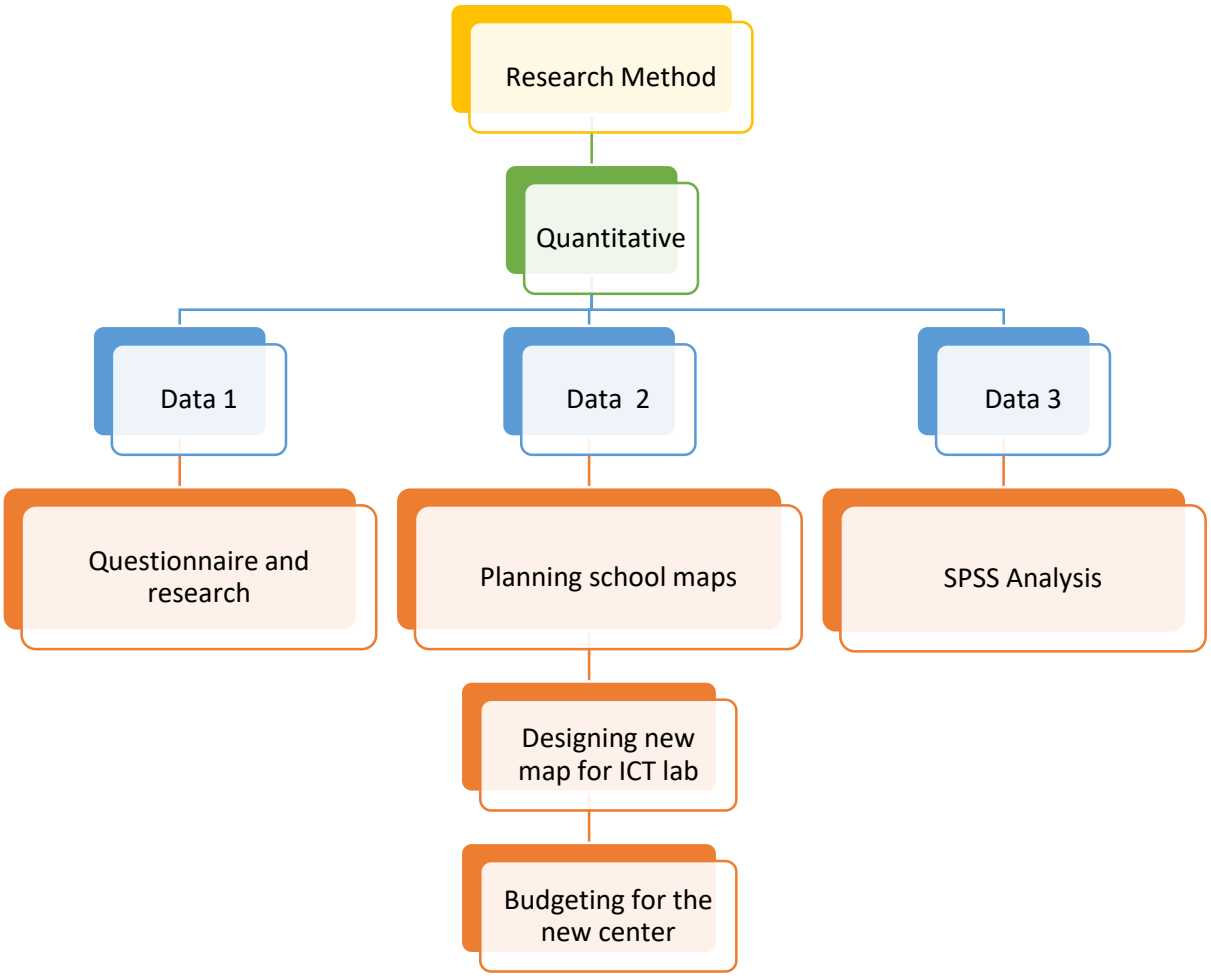


Figure 3: Research method distribution and plan

Therefore, the overall project design and plan for the methodical approach that will be followed are presented.

3.2. Data collection Process

The data collection process will include primary observations and knowledge that was gathered in the previous year when we visited selected schools of UAE to gather ideas about the existing facilities and technological practices that they had for offering assistance to their students who are people of determination. The concepts that we gained were to be incorporated in building consolidated answers to the set of questions that were derived from the main research questions given in section 1.4 of this report. This will be the first step of analyses or data collection.

Based on the prior experiences and the field trips there will be a study on the average map of the school. The school is a general depiction of the facilities that were seen in any government school in the UAE. The map will be designed using the software Adobe Photoshop. Post analysis of the map there will be a smaller area of the map that will be focused upon where the smart center can be designed which would be solely dedicated to the needs of people of determination equipped with the latest and futuristic technologies that will be again designed using the Photoshop.

Post these there will be the budget plan drawn with available information regarding the price of technologies and the cost of construction work that is required to complete the smart center and design the entire new wing dedicated to supporting the needs of the people of determination. The idea that can be mentioned here is that the study will use primary methods for data collection in this project. The true application of insights, practical and theoretical knowledge, and critical and analytical interpretations of observations are the prime approaches for data collection that is done for this particular study.

3.3. Data Analysis Process

The data analysis process usually involves two kinds of approaches for any capstone project. This is the quantitative data analyses process. The first step involves answering the questions framed from the main research questions, this will have a comprehensive analysis of previous experiences and analytical interpretations from the secondary information regarding the futuristic technologies can be help learning and ease the life in schools for people of determination in the literature review section (Guetterman & Fetters, 2018).

The second step includes the study of a map that will have proper features of an average public school in UAE and then incorporate a dedicated smart center for helping people of determination. This step will use the methods of situational analysis, the reason for using this technique is the fact that the approach will involve analyses of the current situation of schools and the analytical interpretations are then used again to draw up the proposition of a smart center within the premises of the school. In addition, the budget is needed for generating funding for the smart center that will have the latest facilities and extensive use of prototypes from futuristic technologies and have finished products like remote wheelchairs, smart education boards, elevators and walkalator (moving walkways), and other pieces of tech that will make a life for people of determination a lot easier in schools.

(See Appendix B: Walkalator and Travelator)

In the third and final step of the current study, quantitative analyses are performed, which involves evaluating SPSS data, frequency analysis, and regression analysis to highlight the primary findings.

3.4. Tools and instruments

The tools and instruments of any research means the kind of resources that are used for gathering information and analyses of the data collected. First, the data collection instruments are to be clarified. The clarifications are categorized under three sections each dedicated to showing one step of the three-step research method that is followed in this capstone.

3.4.1. Step one: Answering Questions

Questionnaire and research

As it has already been hinted in the previous sections that there will be a use of structured question schedule is to be designed for answering, these questions will be open-ended and derived from the research questions that were given in section 1.4 of the introduction. Now each research question presents a specific area of focus, and the sub-questions can be derived from the research questions and listed duly answers to which will be given from the previous knowledge that we gathered for putting together information regarding the technological facilities for the people of determination, and from the research through the internet. Now, these questions along with the research questions that they are derived from are listed as follows:

Table 1: Structured Questions for Data Collection

Research Questions	Structured open-ended questions
RQ-1: What factors are behind the lack of awareness of UAE	1. How do the schools handle the needs of people of determination?
	2. What extent of awareness do the teachers and administration have for such students?

students to smart technologies?	3. Why is it important to focus on people of determination in schools?
RQ-2: How can futuristic technology be useful for learning of people of determination in UAE?	1. What technologies do they use to make their life easier in school?
	2. What futuristic technologies are there to help the people of determination better?
	3. How to implement future technologies in schools to help the students with determination?
RQ-3: How smart technology will change the way of learning amongst UAE students (people of determination)?	1. What are the major advantages of using technology to aid people in determination?
	2. How can they bring positivity to school infrastructures?
	3. Why is it of importance to have the proper infrastructure of schools for students (people of determination)?

As it can be seen that the main three research questions are listed along with the sub-questions that are used for answering the main ideas or questions of the research.

3.4.2. Step two: Designing Maps and Budget Plan

Now, that the research instrument is specified for the first step the second step tools are to be discussed. The major tools for analyses in the second step will be that of parts of MS excel and software that is Adobe Photoshop. Adobe Photoshop is used to design the map for an average public school in UAE that will be done by us, the authors of this paper from our knowledge that we gathered during our visits to UAE schools. This will have a map of the school that will show all facilities for the people of determination. The next in line will be the second map designed by Adobe Photoshop that will have the layout of the smart center that will solely be dedicated to the people of determination. Adobe Photoshop will help the design process and the MS Excel is set to help in planning the budget.

3.4.3. Step three: Quantitative Analyses using SPSS

This project aims to evaluate the proper facilitation of the students of determination in school. In this project, we evaluated SPSS data primarily, frequency analysis, and regression analysis to highlight the findings. As per the hypothesis, there is a lack of facility, lack of teachers, utilization of smart technologies, and special centers that have been creating a negative effect on students of determination. The regression analysis has been evaluated in the report to assess the good fit of the model and to show the relationship among the variables. While demographics have been also analyzed to evaluate the school's name and the area where the school is located. For the special students, there must be special facilitation of wheelchair ramps, toilets, elevators, and stairs handle that could help them to easily survive in the school like other normal students. However, the study has depicted quantitative analysis to evaluate the idea of relationship among the variables and to assess if the researcher could reject the null hypothesis or not.

Research Question for Quantitative Analyses:

Does the school have proper facilitation to focus on the student of determination?

Research Objectives:

The primary objective of the study is to evaluate that there is no focus on the student of determination

Hypothesis

H1: There are a lack of teachers to focus on the student of determination

H0: There are no lack of teachers to focus on the student of determination

H2: There are few smart technologies used in the school

H0: There are no smart technologies used in the school

H3: There are few special centers for students with determination

H0: There are no special centers for students with determination

Chapter 4: Project Analysis:

The three-step analysis is carried out in this section, the answer to the structured questions is given at first followed by the situation analyses of the schools by depicting a general map for an average public school in UAE. Then the map for the smart center will be given followed by the overall budget of the proposed future project to aid the people of determination, making their lives easier in school. The research will have detailed analyses of budgetary plans to give consolidated results for the entire research or capstone project. Will evaluate the facilitation in the government schools by using data from the Ministry of Education website and analyzing the data accordingly using SPSS software. The project analysis derivable can be listed briefly as per the following points.

- Answers to the structured questions derived from the main research questions
- The situation analyses of map and layout of an average school in UAE
- The projected map of smart center and the features and technologies discussion that will make things easier for people of determination
- The work breakdown structure and tasks for the project of smart center
- The budget plan along with budgetary analysis of the various aspects required to put together the smart center
- The evaluation of SPSS data by analyzing, regression, setting a Hypothesis to highlight the findings clearly

Now that the essentials and project derivable are stated the results and analysis can be given for the study.

4.1. Answers to the Structure Questions

We had undertaken Bachelors in Educational Technology major. In the last few years for which we visited schools and universities to gather information about their infrastructure. The school visits that we had were part of our internship program. The questions that were designed as an instrument for data collection are to be put together and answers should be built using the ideas that we gathered as students in our Bachelor's course. The previous course needed us to teach students in different and many schools of UAE, because of this we got a primary idea about how the schools organize themselves and what all technological

facilities do them offer for the students of determination. During our field trip, we have come across the fact that at the university level use of technology is better compared to the government schools and other universities. For example, Zayed University uses significant technology for students in need of assistance but at the school level, there should be more practice of technology use. To add more explanation, it can be stated here that Zayed University has stated of the art ICT center for people of determination. They have staff and equipment that helps students with their needs and create ways in which they can be benefitted from technological innovations that help in learning.

Zayed University has a department for Student Accessibility Services (SAS), the department's vision is to focus on giving students of determination equal opportunities to reach their full potential. The department has the latest technologies in terms of brail for visual impairment and technologies for hearing disabilities or other forms of disorders such as ADHD, Dyslexia, Dyspraxia, Dyscalculia, Dysgraphia, Autism Spectrum, Language Disorders, Memory Problems, etc. The department also provides an ecosystem using Apple devices for the students to get access to their needs. **(See Appendix C: SAS Department – Zayed University)**

The following chart shows evidence that how learning of students of determination was benefitted by the use of technology at the Zayed University.

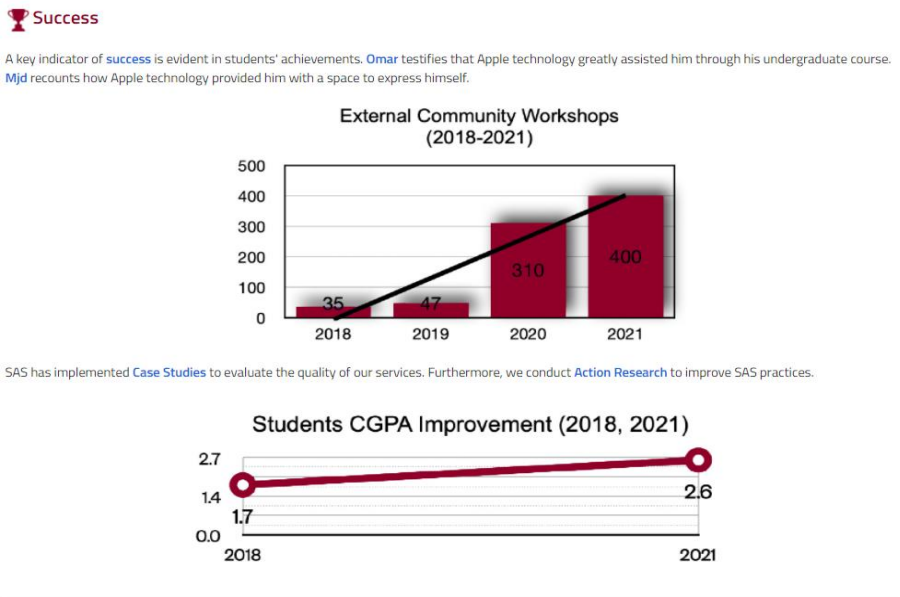


Figure 4: Success of student of determination in Zayed University by use of technology

These are essentially seen for the case of institutes of higher education, for example, Higher Colleges of Technology also has dedicated tech for supporting students of determination, however, they do not have a department like that of SAS for Zayed. These are essentially background ideas that help to think of infrastructural development which schools can use.

The ideas that we gained during those sessions are useful for answering the questions and analyzing the current state of technology used for aiding the people of determination. The answers will be followed with a depiction of the site in form of a map that will represent an average public school in UAE and then ideas can be drawn for building the smart center within their premises. For the execution of the answer building program, we will be using the experience and knowledge that we gathered during our visits to the following schools in UAE:

- Otbah Bin Ghazwan Boys School
- Princess Haya Bint Al Hussein Girls School
- Dubai Women's College
- Al Hudaibya Primary School **(See Appendix D: ICT Lab)**

RQ-1: What factors are behind the lack of awareness of UAE students (people of determination)? concerning smart technologies?

1. How do the schools handle the needs of people of determination?

The schools at present have standardized approaches for people of determination. During our visits most of the cases we came across, we saw that schools offer human assistance to people of determination. Some schools have installed smart elevators which can be accessed by people in wheelchairs and operated using phones for their ease. But the practices can be further extended by the use of futuristic technologies in learning to make things way easier for people of determination. We have also seen that schools have dedicated policies for offering aid on request for the people of determination, however, according to our experience, there should be extensive use of technology or facilities that can be offered directly to the students who are people of determination (Arshad, et al, 2020).

During the research, we found many articles related to Information and Communications Technology (ICT) which are used by many international standard schools for aiding their

students who come as people of determination. The use of new and advanced technologies is being prioritized by the school authorities to make the life of people of determination easy. Most modern-day schools are looking to promote teaching to the students of determination and handle their needs by using e technologies such as assistive keyboards, and robots. Designing of learning plan is accordingly done based on the assessment of the learning needs. These technologies are also being used in schools to help students with determination. For example, the use of robots enhanced the learning system and allowed people with determination to focus more on their studies. Hence, we are encouraging the development of ICT use, especially in the government schools in UAE.

2. What extent of awareness do the teachers and administration have for such students?

Schools in UAE have awareness about the assistance that people of determination might need. They have standardized policies and therefore follow protocols for assisting the students who are people of determination. There are basic amnesties such as allocated parking spots, smart elevators, wheelchair access throughout the campus. However, there is some sort of lag in terms of technology usage. The higher institutes such as universities have dedicated technology used for helping people of determination but for schools the technology use has some room for improvement.

In modern-day classrooms, teachers are focusing are highly aware of the learning difficulties faced by students with disabilities. Greater focus is given to the inclusion of proper technologies that will be empowering the students with determination in fulfilling the learning needs. Interacting individually with students is being considered to maximize the interaction level. Through proper interaction, the assessment of the learning needs is done (Horbova, Andrunyk, & Chyrun, 2019). With better interaction in the classrooms, the sense inclusion of the appropriate form of technology is given to eliminate the learning barriers for the student having greater difficulties.

3. Why is it important to focus on people of determination in schools?

It is essential to focus on people of determination because they feel difficult to learn things. People of determination have special needs, and they don't understand things easily as ordinary people. They have specific social, educational, and emotional needs which should be met to give those equal opportunities as that their peers. Due to their difficulty, they face

many challenges. Therefore, educational institutions need to focus on the unique needs of these students. The schools should also ensure that people with determination are given more care and integrate ICT for their facilitation in learning and movement so that they don't feel left out in classes. In addition, focusing on students with special needs will create new opportunities for them and will also help in creating an inclusive and positive society for all.

RQ-2: How can futuristic technology be useful for learning of people of determination in UAE?

1. What technologies do they use to make their life easier in school?

Different types of ICT technologies have been highly helpful for teachers to make students of determination understand the concept in a better manner. The utilization of virtual simulation programs to teach concepts in science and mathematics is predominantly utilized in the current classrooms to promote easier learning for students with disabilities. Visual models there are integrated that are highly assisting teachers in documenting difficult ideas. Students with special difficulties understand the concept better by visual illustration. The application of smart learning boards for digitalized teaching is also considered for interactive teaching. Recorded audio and video clippings are also part of a smart learning management system by which demonstration of ideas and concepts are properly done for engaging students in the classrooms. We believe that the integration of robots along with the virtual simulation will create a better learning environment.

2. What futuristic technologies are there to help the people of determination better?

To empower people with a determination within the schools and universities application of futuristic technology has been regarded to be a priority. Utilization of a mobile-based education system inclusive of virtual reality can be done to promote engaging learning sessions. The inclusion of augmented really reality can be a futuristic solution to promote a better understanding of educational concepts for students of determination. AR technology will be beneficial as virtual field trips for different classroom sessions can be conducted. This will be promoting interactive learning on different historical places and facts and thereby students' disabilities will be assisted for better expansion of their knowledge. As discussed in section 1.4 of this report, to focus on students of determination comfort, and facilitation, we

encourage them to build smart elevators and Wheelchairs as we observed their difficulty in using the normal elevators and Wheelchairs.

3. How to implement future technologies in schools to help the students with determination?

As a part of integrating future technologies to empower students with disabilities having the right infrastructure is essential. To implement futuristic technologies, it is essential to have a competent workforce who knows about operating digital and artificial intelligence-based technologies. Inclusion of resources to operate technological-based upon which execution of technology-driven classes will be conducted to deliver adequate learning facilities must be regarded to implement digital learning sessions. As a part of implementation awareness and digital teaching module and their application must be made aware to the teachers.

RQ-3: How smart technology will change the way of learning amongst UAE students (people of determination)?

1. What are the major advantages of using technology to aid people in determination?

The utilization of digital engagement technology-based learning for the people of determination will promote better learning development. Based on modern technologies and digital solutions, real-time data shall be incorporated. This will optimize the learning environment as teachers will be able to assess their growth and deliver feedback accordingly as per their needs. The inclusion of futuristic technologies can help boost the classroom environment and thereby promote better interaction. We realized that when the students of determination were using ICT, it helps them to understand easily, and it makes a better change in their emotions because they feel that they have the ability to use modern technology.

2. How can they bring positivity to school infrastructures?

Changing the infrastructure can be achieved by implementing minor operational and structural changes to the school, for example, they can have smart learning centers where the dedicated focus will be given especially to the people of determination, this might lead to the notion that they are being given separate treatment but to be very true, for getting equal opportunities as that of their peers, it is important for people of determination get the appropriate amount of care and attention and technology is bound to offer that in

abundance. So, the schools should have technologies in place to assist the students (Iyo & Caraig, 2020). The use of new and advanced technology will help in creating a positive environment for both the students and school as it will provide equal opportunities to all students. The use of new technologies will also help the schools to provide better students with a better education system which will result in a better understanding of subjects. In addition, the use of new technology has helped to reduce the burden on the teacher and results in better involvement with students. The school authorities are also able to provide education to all the children at the same class and same time, thus creating a positive school infrastructure.

3. Why is it of importance to have the proper infrastructure of schools for students (people of determination)?

Infrastructure development of schools is primarily the most prioritized area for supporting the implementation of modern forms of digital learning. Furthermore, consideration of developing along with augmented reality and mobile-based gadgets. The technological team will provide detailed IT support and provide assistance to eliminate any kind of disruption in digital learning in classroom teaching.

With the development of proper infrastructure students having disabilities will be assisted towards independent learning. Infrastructure like the presence of automated wheelchairs will support students towards their mobility within the universities and schools. Infrastructure associated with the development of an internal support team for promoting technology-based learning shall be required.

4.2. Design and Analyses of an Average Public-School Map

The school map is designed using Adobe Photoshop. The representation here shows a general illustration of an average public school in the UAE that we have visited. The layout shows the essential floor plan for the school along with rooms and facilities that are offered for the students, teachers, and administration. The image below shows the map of the school.

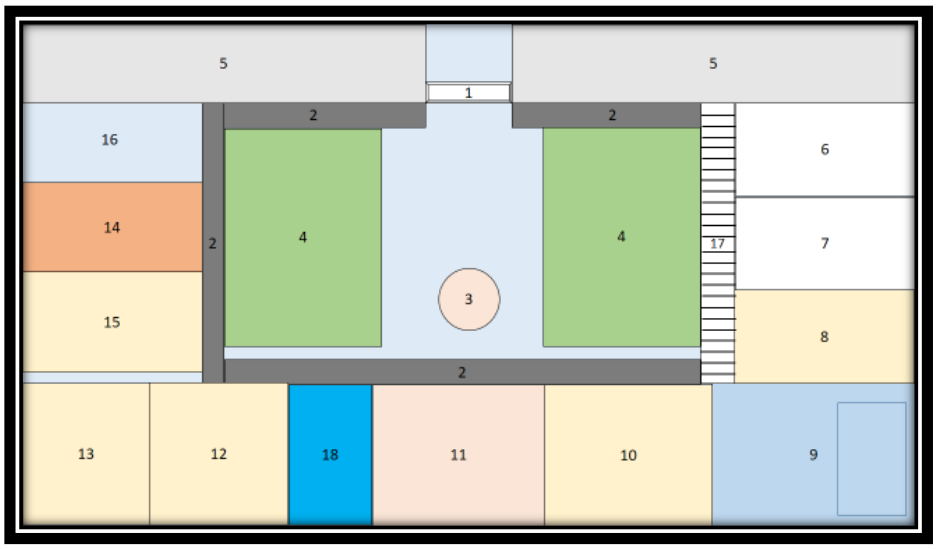


Figure 5: Map of a generic public school

The table below is shown as the index for the map that shows the numbers and the rooms or areas allocated against those numbers in the map. The areas are allocated with specific purposes.

Table 2: Index for school map

Sl. No.	Blocks
1	Main gate
2	Paved pathways
3	Centre statue
4	Playgrounds
5	Parking space
6	Administration and office
7	Restrooms
8	Senior classroom and laboratory (1)
9	Food court and canteen
10	Classroom (2)
11	Assembly hall
12	Classroom (3)
13	ICT lab for regular students

14	Staff quarters (for non-teaching staff)
15	Library
16	Storage unit
17	Stairs
18	Student restrooms

4.2.1. Designing a new Smart Center Project

The new smart center can be built inside the school premises. The smart center can be in form of an ICT lab with the latest smart technologies and devices that are suitable for students of determination. The basic features can be listed as follows:

- Brail for visually challenged individuals
- Accessibility for physically challenged individuals
- Smartboards and keyboards
- Technology for hearing impairment
- Dedicated use of smart systems
- Assistance for learning disorders

As the analyses reveal that there can be a space cut out from the library and staff quarters which will be close to the parking space where the smart center can be constructed to build the innovation-based facility for helping people of determination for easing their lives in school. The reason for the choice of the area near the parking space is to have a separate entry that will be directly connected to the parking using a timed Walkalator (Izani, Alkhalidi, & AishahRaza, 2019). These will be driven by motion sensors and automated wheelchair services can be made available for the people of determination. The layout of the proposed smart center can be given with aid of the following map. The arrows represent the path of the Walkalator.

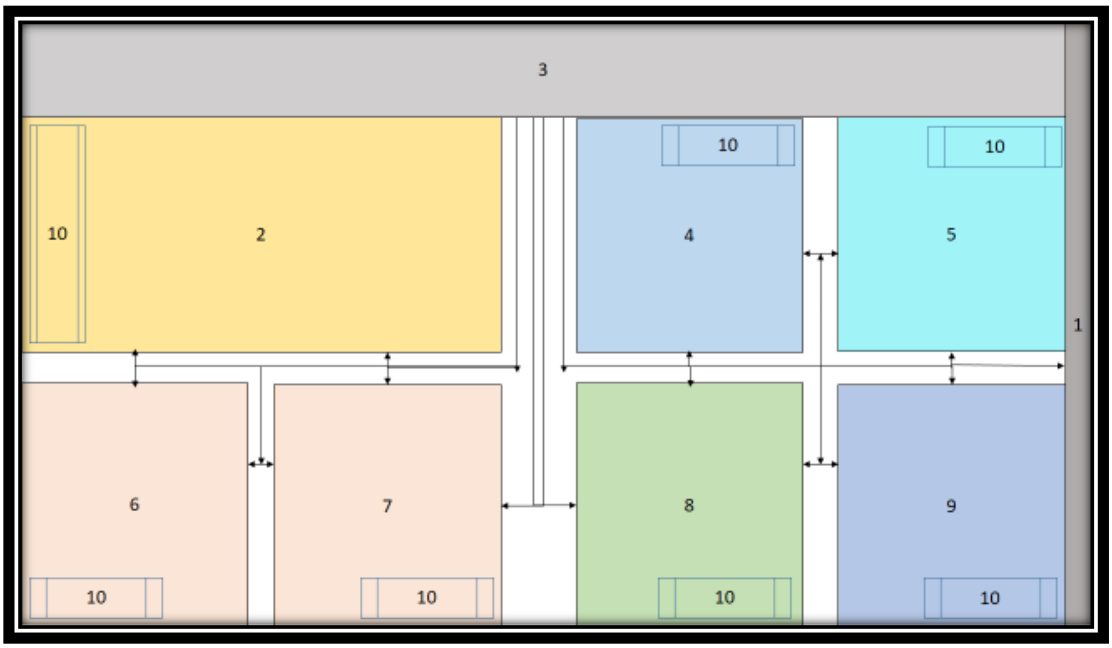


Figure 6: Map of the proposed Smart Center of learning for people of determination

The index for the proposed map for the smart center can be listed with help of the following table:

Table 3: Index for Smart Center map

SL No.	Blocks
1	Walkway (with smart conveyer belt)
2	Workshop area
3	Parking space
4	Library (smart library) and workroom
5	Smart elevator with smart Wheelchairs on the side
6	Classroom (1)
7	Smartboards
8	Laboratory for people of determination
9	ICT lab dedicated for people of determination
10	Teacher's podium/Administration and nurse office

To add further to the items of the list, the ideas can be listed as follows to comprehend the basic features of the classrooms, library, and ICT labs:

- **Classrooms:** The classrooms will have good technologies such as smart boards and keyboards for typing of students of determination with visual and hearing impairments, the desks will be wheelchair friendly, there will also be smart

wheelchairs and for connectivity, the centralized system will be of help to the teachers to focus on student needs individually.

- **ICT Lab:** The laboratories will have state-of-the-art equipment to help people with determination. There will be virtual assistance for students, just like the examples drawn from the technologies used at the university level, the schools should also incorporate extensive technology use with audiovisuals, sensory programs, and smart features to assist the students of determination in every way possible.
- **Library:** Completely digitalized library with options for brail and hearing impairment, there can be virtual access from student tabs at ease and create ways in which students who are people of determination can get maximum assistance to address their needs.

As it can be seen that the smart systems and ICT technologies are used at great lengths to propose the layout or design of the smart center, the features are designed keeping in mind the futuristic technologies and also the ideas that can be framed from the design that there are restrooms at every block for emergencies and the administration and staff office will also have medical assistance facilities. The walkalator is marked with arrows on the map and it is clearly showing access to every room and every periphery of the smart center. Therefore, this will be a unique section that will dedicatedly support the day-to-day needs of students who are people of determination, making their lives in school a lot easier.

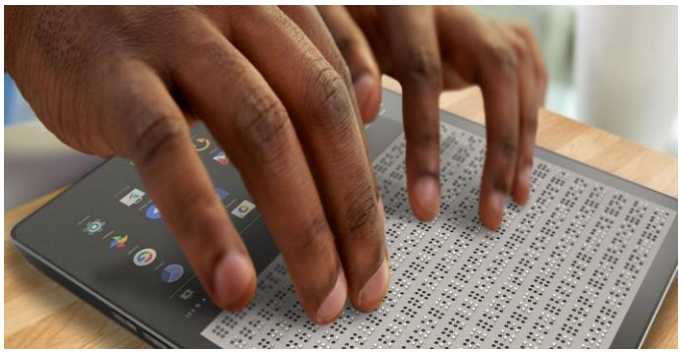
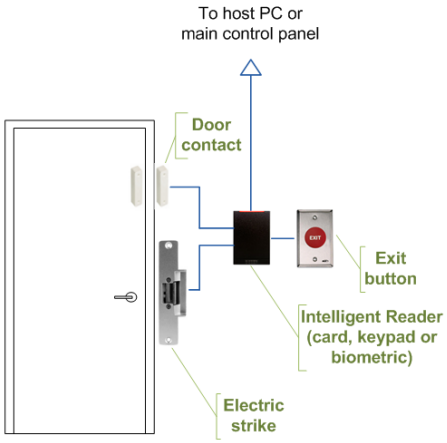
4.2.2. Discussion of features and advantages of the Smart Center

The action plan for constructing the project which is the smart center can be drafted for this research. We must list the essentials and features first that will be offered at the smart centers for the people of determination.

Table 4: Technological features available at the Smart Center:

Sl. No.	Advantages	
	For accessibility	
1	Smart walkalator 	Will provide easy access to the classroom for people of determination. These will operate using motion sensors to save energy It will be wheelchair friendly and also can be controlled by mobile phones through the application. These will also connect bathrooms and classes.
2	Smart elevators 	This will essentially provide access to the upper story of the Smart center.
3	Smart wheelchairs 	These will be operated through application by the students directly They will have features such as mount assistance

In-class technologies		
4	Smartboards 	These are boards with technical features like voice typing, digital screens with easy access. The boards will be movable so that they can reach students if needed.
5	Virtual reality teaching 	This will be helpful for students with visual or hearing impairments since VR will allow them to feel the lectures and understand completely. The technology will allow the complete teaching facilities through VR for the students so that they can understand every periphery and learn at their best. This technology will also be used in virtual labs for assessment design and lesson frameworks for the people of determination
6	3D Learning Glasses 	These will allow the people of determination to get a better experience of 3D learning. The ideas can be developed that augmented reality will help them access and learn in a better way so that they can get a good quality of education from the schools

7	Smart tabs 	These will be individualized custom tabs given to the students to do all their work. These will have voice recognition and also will be available in brail format to help people of determination. The students can customize the features and access all the facilities through voice commands
8	Individual Virtual assistance 	Each student will have dedicated virtual assistance for themselves to help them in times of need The assistance will be given for learning needs or any form of guidance or information that students might require
9	Voice over instructions 	The tabs will be connected to the school's system and all will be voice-controlled so that the students don't have to go through the trouble of typing. There can be a proper use of such facilities to make life easy for people of determination in schools
10	Voice operated computers 	The labs and libraries will have voice-operated computers to incorporate the search assistance. These systems will also be used to control the actions such as unlocking doors or giving instructions to the walkalator and wheelchairs which will be also connected via the virtual assistance offered to the students.

4.2.3. Budget Plan for Smart Center

The budget plan for the smart center is prepared using an Excel table and the overall expenditure structure is given with help of the table below:

Table 5: Expense table for the Smart Centre

Items and technologies	**Cost in AED**
Smart elevator	15,000
Construction work needed	20,000
Create voice assistance and a centralized system	9,000
Robots, and wheelchairs with the device	30,000
Tabs and computers	30,000
VR and AR services	15,000
Walkalator	16,000
Total	**135,000**

The use of this budget can help the schools in UAE build their infrastructure and create proper facilities to help learn the people of determination. The budget plan covers the essentials required for the overall design and technologies and construction work needed for creating a smart learning center for people of determination in school. The overall fund required for the construction is that of 135,000 AED. This will be mostly a one-time investment for the schools, but this will redefine the entire learning experience for people of determination.

4.3. SPSS Analysis

This data aims to evaluate the proper facilitation of the students 'determination in the government schools in the UAE. The data to be analyzed was uploaded from the Ministry of Education website. We went through some steps in SPSS. For example, Hypothesis in section 3.4.3 of this report, demographics analysis, and regression.

The demographics analysis has been evaluated through SPSS software. Firstly, the data have been coded in the data view. Then we coded the variable name in the "Variable View" section. To obtain demographics, we selected Analyze>Descriptive statistics> Frequency analysis. To

obtain pie charts, click on the pie charts option. Upon doing OK, we obtained the tables and pie charts in the output view.

Demographics

Table 6: Demographic Statistics

Statistics

		Educational zone	Name of school
N	Valid	307	307
	Missing	0	0

The table depicts that the total number of respondents is 307.

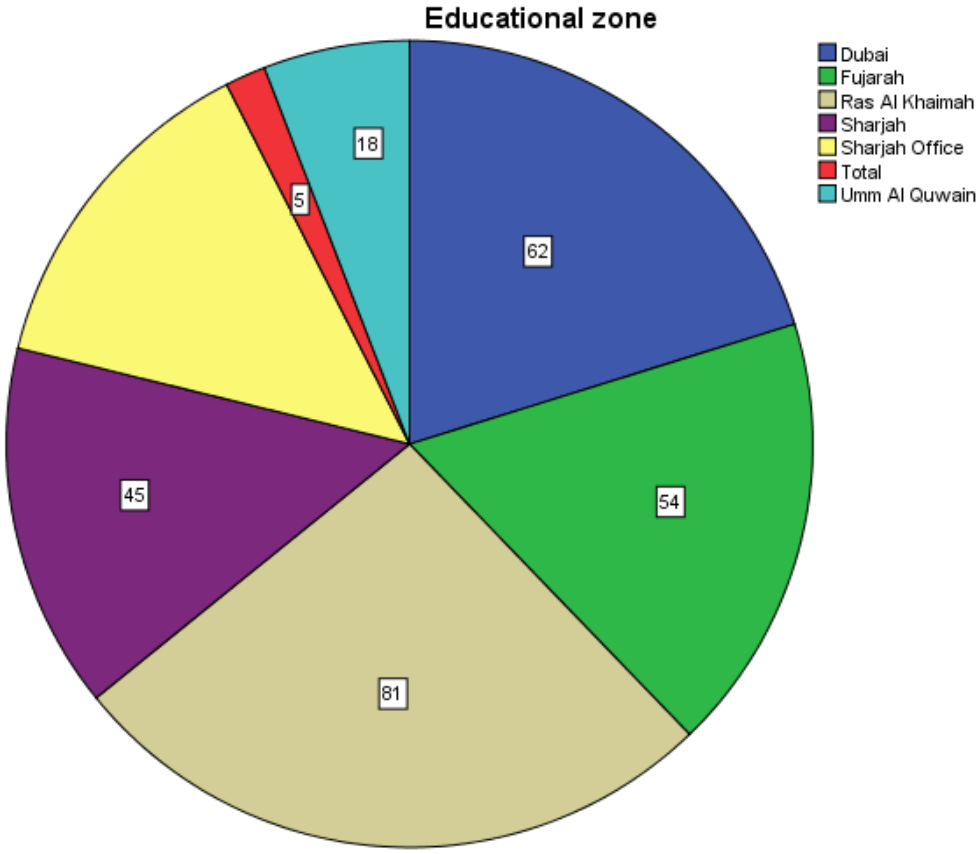


Figure 7: Pie Chart showing the different Educational zone

The above pie chart has been displaying the educational zone that includes Dubai, Fujairah, Sharjah, and others.

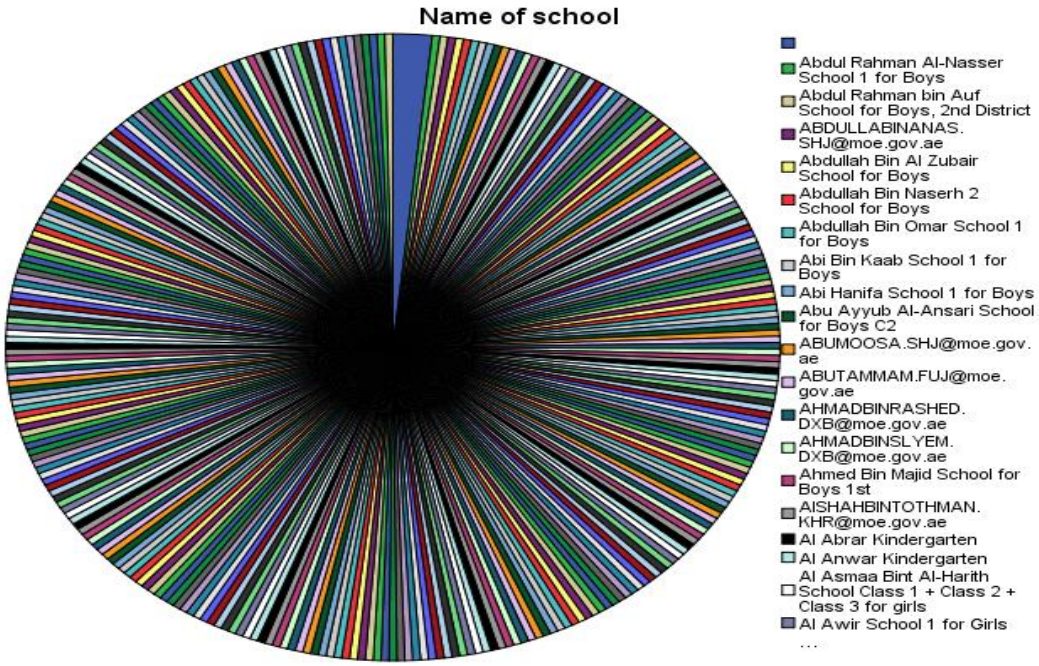


Figure 8: The pie chart enlists the school's name of the respondents

Frequency Analysis

For the frequency analysis, we have selected Analyze>Descriptive statistics>Frequency analysis in the SPSS software. To obtain pie charts, click on the pie charts option. Upon selecting the option of OK, we obtained the tables and pie charts in the output view (Bingham & Fry, 2010).

Table 7: Number of Teachers in Special School Classroom

Number of teacher in special school classroom

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	00	284	92.5	92.5	92.5
	1.00	15	4.9	4.9	97.4
	2.00	6	2.0	2.0	99.3
	3.00	1	.3	.3	99.7
	25.00	1	.3	.3	100.0
	Total	307	100.0	100.0	

With regards to the number of teachers in the special classroom, 284 students depicted 0 ratios of teachers, 15 depicted 1 ratio, 6 depicted 2, 1 responded to 3 teachers and 1 responded to 25 teachers. This declares that the ratio of teachers in the special classroom is very low.

Table 8: Integration of Special Education Teachers

Integration of special education teachers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0.00	91	29.6	29.6	29.6
	1.00	185	60.3	60.3	89.9
	2.00	24	7.8	7.8	97.7
	3.00	2	.7	.7	98.4
	12.00	1	.3	.3	98.7
	18.00	1	.3	.3	99.0
	39.00	1	.3	.3	99.3
	46.00	1	.3	.3	99.7
	80.00	1	.3	.3	100.0
	Total	307	100.0	100.0	

With regards to the integration of special education teachers, 91 students depicted 0 ratios of teachers, 185 depicted 1 ratio, 24 depicted 2, 2 responded to 3 teachers and 1 responded to 80% integration of special education teachers

Table 9: Wheelchair ramps

Wheelchair ramps

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0.00	42	13.7	13.7	13.7
	1.00	259	84.4	84.6	98.4
	17.00	1	.3	.3	98.7
	30.00	1	.3	.3	99.0
	35.00	1	.3	.3	99.3
	45.00	1	.3	.3	99.7
	84.00	1	.3	.3	100.0
	Total	306	99.7	100.0	
Missing	System	1	.3		
Total		307	100.0		

The idea of wheelchair ramps in the school, 42 students declared that there are 0 wheelchair ramps in their school, 259 depicted that 1 wheelchair ramp is there and 1 declared that there were 84 wheelchair ramps. Fewer schools are having a high number of wheelchair ramps facility

Table 10: Toilets for students

Toilets for students

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0.00	80	26.1	26.1	26.1
	1.00	218	71.0	71.0	97.1
	2.00	4	1.3	1.3	98.4
	17.00	1	.3	.3	98.7
	25.00	1	.3	.3	99.0
	26.00	1	.3	.3	99.3
	33.00	1	.3	.3	99.7
	84.00	1	.3	.3	100.0
	Total	307	100.0	100.0	

Concerning the toilets facilitations for students, 80 students depicted that no toilet facilitation is in the school for people of determination, while 4 depicted that there are 2 washrooms.

Table 11: Availability of elevators

Elevators

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0.00	213	69.4	69.6	69.6
	1.00	88	28.7	28.8	98.4
	5.00	1	.3	.3	98.7
	10.00	1	.3	.3	99.0
	15.00	1	.3	.3	99.3
	19.00	1	.3	.3	99.7
	27.00	1	.3	.3	100.0
	Total	306	99.7	100.0	
Missing	System	1	.3		
Total		307	100.0		

The availability of elevators is also low, as 213 respondents responded to 0 and 88 responded to 1.

Table 12: Stairs Handle

stairs handle

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0.00	306	99.7	100.0	100.0
Missing	System	1	.3		
Total		307	100.0		

The stairs handle in the school facility was 0% as 306 respondents depicted to have no stairs handle.

Regression Analysis

For the regression analysis, we transformed the two variables including availability and HR system in the school. From analyze option, we clicked on REGRESSION then LINEAR, the table occurs to input the dependent and independent variables. After entering the variables, Clicked OK to obtain output tables (Hogg, McKean, & Craig, 2012).

Table 13: Model Summary of Regression Analysis

Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	HR [b]	.	Enter

a. Dependent Variable: Availability

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.961[a]	.924	.923	3.87973

a. Predictors: (Constant), HR

The above table is a model summary obtained from the output of Regression analysis. The value of R shows the relationship percentage that is 0.96 thus, it has been denoted that there is a 96% strong relationship among the variables and the independent variable has been 92% explaining the dependent variable.

Table 14: ANOVA Testing

ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	55111.399	1	55111.399	3661.325	.000[b]
	Residual	4560.850	303	15.052		
	Total	59672.249	304			

a. Dependent Variable: Availability

b. Predictors: (Constant), HR

The above table is ANOVA that illustrates the sig value that is .000 showing less than 0.005. This elaborates that we reject the null hypothesis, and the statement is true that there is a lack of facilitation in special schools (Wasserman, 2010).

Table 15: Coefficients Table showing the beta value

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.200	.229		.873	.383
	HR	1.163	.019	.961	60.509	.000

a. Dependent Variable: Availibility

The above table is a coefficient showing the positive beta value that means the increase in the independent variable could increase the value of a dependent variable.

Chapter 5: Conclusion

The section here drafts a complete conclusion for the entire capstone project. The ideas that have been discussed so far will be summed up along with the future research recommendations to the schools for making the environment friendlier for the people of determination.

5.1. Conclusion

To sum up, the inclusion of technology is duly to be encouraged and practiced more in schools and universities along with providing the people of determination their essential needs. These issues should be addressed at the school level, we encourage the integration of technology in assisting people of determination so that they can receive equal opportunities as their regular peers and can feel ease and proper assistance. The research done here is a capstone project to make life in school easier for the students who are people of determination with the proper use of futuristic technologies. The topic or title of the research states clearly that the research aims to investigate whether futuristic technologies can be used for easing the school life and experience for the people of determination. As a dedicated purpose of the capstone, the issues need analyses and will work their way towards building a proper solution. The agenda at hand for us was to build ways to make life easier for people of determination and plan ways for meeting their social, emotional, and educational needs that will have the use of futuristic technologies. The research properly introduces the idea with the acute depiction of purpose and problem statement. The goals were also set and an idea about methodology was formed. We encourage the integration of students of determination with normal students in schools and universities on condition to provide all their needs smartly.

The literature review section provides a theoretical overview where it uses the Technology Acceptance Model (TAM) or framework that helped in understanding the concept that schools and administration along with the entire education sector are taking positively the extended use of technology for learning and education (Kamal, Shafiq, & Kakria, 2020). The idea that technology is accepted by most of the individuals led to the concept of practicing the use of futuristic technologies that will be of substantial help towards building proper care and attention deliver assurance for easing life for people of determination in their school

experience. The secondary reviews undertaken showed various approaches undertaken by higher educational institutes practicing the use of technology to aid people of determination. The ideas are further drawn for the ICT use in education and learning. The studies build a strong notion of technology use for helping people of determination and giving them the equal opportunity of learning compared to that of their peers (Xanthidis, Manolos, & Paul, 2020).

Going back to the research hypotheses it can be seen that two main hypotheses w gave at the start, such:

Null Hypothesis (H0): Futuristic and smart technology has no positive impact in aiding the people of determination in matters of better learning

Alternative Hypothesis (H1): Futuristic and smart technology has a positive impact in aiding the people of determination in matters of better learning.

Now after the entire discussion and analyses it found that futuristic technologies do help in making things easier for the people of determination. The discussion hence verifies the basic idea of the alternative hypothesis, and the null hypothesis is, therefore, rejected.

For the step 3 SPSS analysis, the hypotheses were remodeled as discussed in section 3.4.3. Now the conclusion can be drawn for this part. The report has been demonstrating the lack of facilities and teachers in the special school thus, the main aim of the study is to analyze the steps in SPSS for doing regression analysis, frequency, and demographics analysis. The analysis signifies that there is less facilitation of toilets, stair handles, and teachers in the special student's classroom that have been making a negative effect on their learning efficiency. However, the results are in favor to reject the null hypothesis and accepting the fact that there is a lack of facilitation for the special students. The school must do efforts to provide the students with proper facilities of toilets, wheelchair ramps, stair handles, and smart elevators so that no child feels uncomfortable in this learning environment.

The capstone comes up with a solution of designing a smart learning center for students who are people of determination that is laced with futuristic technologies to make their learning experience easier. The data collection and analyses were done using a three-step approach, firstly we built a set of structured questions that we answered using our knowledge and experience during visits to selected schools in the UAE in the previous years. Then there is the

second step for situational analyses were an average school map is designed and analyzed for their facilities, then a specific area is identified, and a proposed layout of a smart solution center is given. The budget plan is also given in the second step. Finally, the third step analyzes primary data using quantitative methods through SPSS to see whether schools in UAE have any existing facilities for the people of determination.

5.2. Recommendations

The recommendations can be given in the lines which school administration can follow immediately and can be directed towards building strategies for constructing a smart learning center for the people of determination. It is already said that the basic plan is found in universities and higher educational facilities, but the design proposed in this research has far more futuristic technological features and devices and should be followed by schools to provide cutting edge assistance to the people of determination.

Firstly, schools can have their staff and teachers trained using workshops to understand and use these technologies that can aid the people of determination. There can be dedicated policies for technology use mandated by schools to allow equal opportunities of learning to the people of determination as that of their peers.

The smart learning center is an effective and strong plan serving a plethora of technological advancements that will make the life of students who are people of determination easier in the schools. The features such as smart elevators and wheelchairs, walkalator connectivity, and detailed control and orientation using voice-controlled features with a dedicated application for accessibility and assistance are truly a viable option to make things easier for the people of determination.

There can be dedicated project management teams formed by the school administration for implementing the plans and getting strong progress on the suggested ideas so that the people of determination can have a good chance of easy life in schools. The students also need training for which workshops can be planned.

Thus, the major recommendations are provided. The appendix listed some images of such futuristic technologies and approaches that can be used as examples or basic building blocks for the suggested smart learning centers.

5.3. Future Work

In near future, we can direct the research to a more practical approach by drafting a detailed plan of action using project management techniques to find the time and cost breakups for constructing such a smart learning center. There can also be surveys done with leading schools to understand whether they are willing to spend their funds and resources to plan for such an advanced project. The research will also include data and project plans such as the

overall list of activities and the sequence or work breakdown patterns for the project. Until then this provides a good foundation towards the future for easing the lives of people of determination in schools. The solution also has a subtle aim of allowing equal opportunities and making the people of determination more self-reliant which is needed for boosting their confidence in life and making them feel like equals which they are for any other individual. The start of urbanization has brought to light sustainable practices, and this includes the use of technology for easing the way of life, the schools should also follow this idea in the future and update their infrastructure to assist the people of determination properly.

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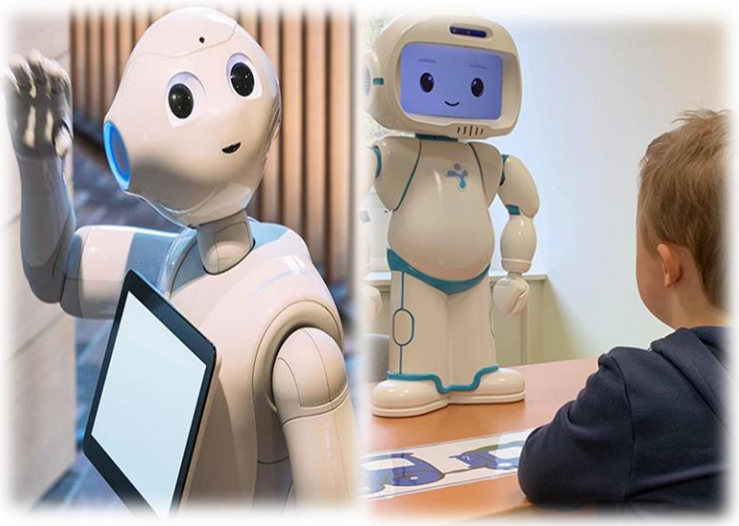
Appendix A: Smart Technologies

1. A smart wheelchair that contains emergency buttons connected to the nurse and administration with special and smart features	 
2. A Smart elevator programmed with face ID and virtual assistant (Blind students)	  

3. Example of application: called (Smartylife) it's between the guardian of the people of determination and the teacher to follow up everything related to behavior, degree, and development.	
4. Robots to enhance communication for people with autism	

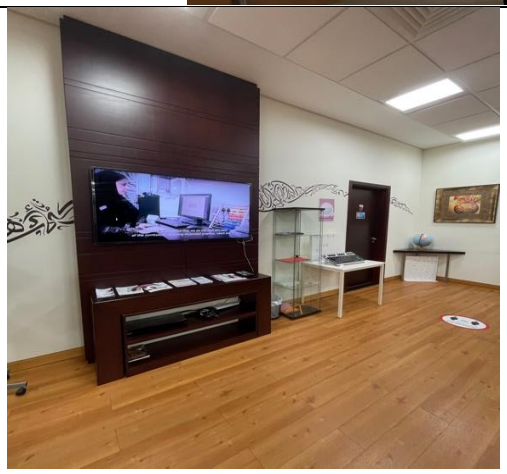
Appendix B: Walkalator and Travelator

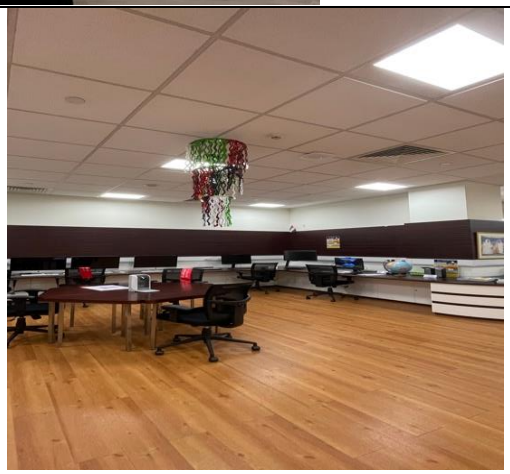
	
Walkalator	Stair Lift

Appendix C: SAS Department – Zayed University


مركز خلف الحبتور
لمصادر التكنولوجيا المساعدة
KHALAF AL HABTOOR
ASSISTIVE TECHNOLOGY RESOURCE CENTER

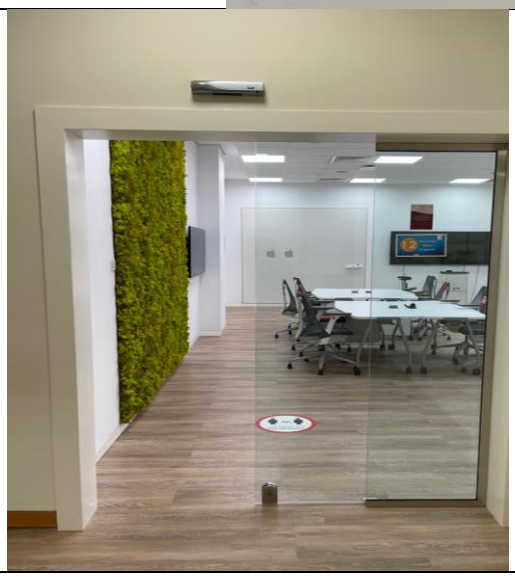





10:52


Perkins
Braille Type Writer


مركز عبدالواحد الرستماني
للتعليم الدامج
Abdul Wahid Al-Rostamani
Inclusive Learning Center



Appendix D: Al Hudaibya Primary School – ICT Lab